GlideScope®
Video Laryngoscopes

RANGER

Ranger and Ranger Single Use

User's Manual and Quick Reference Guide

0900-1307-05-20

GLIDESCOPE®
Video Laryngoscopes

RANGER

Ranger and Ranger Single Use

Quick Reference Guide

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GlideScope, GVL, GlideRite, and Verathon are trademarks of Verathon Inc. All other brand and product names are trademarks of their respective owners.

The GlideScope® technology is covered under US Patents (6,655,377) (6,543,447) as well as European Patent 1307131. Additional patents pending.

Information in this User's Manual and Quick Reference Guide may change at any time without notice. For the most up-to-date information, see the online manuals on verathon.com.

GlideScope® Video Laryngoscope systems are CE marked in accordance with the Medical Device Directive, and the Verathon Inc. quality is Quality System Certified to ISO 13485:2003 standards.

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GlideScope® Ranger System Quick Start

1 The battery must be fully charged before first use. The unit will not operate while charging. If it is switched on during charging, the charging light will flash alternately green and orange.

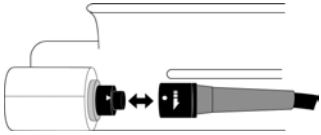
2 To ensure proper charging, follow these steps *in order:*

- Make sure the power switch is in the OFF position.
- Unscrew the DC socket protective cap on the front of the monitor (a screwdriver or a small coin may be used).
- Plug the power supply barrel connector into the DC socket. Plug the AC cord into the power supply and then into the wall.
- The charge status LED will turn orange, indicating that the recharging cycle has begun.
- When charging is complete, the status LED will turn green.

3 Connect the Video Laryngoscope to the monitor.

- If using the Ranger GVL®:

  Insert the Ranger GVL® cable connector into the port located on the face of the monitor so that the arrows on the cable and the monitor line up.



- If using the Ranger Single Use system:

  Connect the video baton cable connector to the monitor as shown for the Ranger GVL® above. Then slide a single-use GVL® Stat over the video baton.

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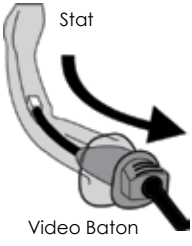
GlideScope® Ranger System Quick Start

To detach a GVL® Stat from a Ranger Video Baton, grasp the base of the video baton handle and pull firmly.



IMPORTANT! A used GVL® Stat is a biohazard and should be disposed of in compliance with local protocols.

LED State	Meaning
Steady green CHARGE STATUS	The battery is fully charged.
Flashing green CHARGE STATUS	Battery power is low. LED flashes for approximately 5 minutes before shutting off.
No LED CHARGE STATUS	The battery is completely depleted and needs to be recharged.
Flashing orange CHARGE STATUS	A flashing orange light indicates a battery problem. When this happens: • Disconnect the DC connector. • Make sure the switch is in the CHARGE (or OFF) position. • Reconnect the DC connector. • If the orange LED is still flashing, the battery has failed. • Return the unit for repair.

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Video Laryngoscopes

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Cleaning and Disinfecting the GlideScope® Ranger GVL and Ranger Single Use Video Baton

- **DO NOT expose to temperatures above 60°C (140°F).**
  DO NOT disinfect using devices such as autoclaves, ultrasonic cleaners or pasteurizers.
- The GlideScope® Ranger GVL® is a non sterile, reusable device. It is recommended that the Ranger GVL® is cleaned and disinfected after every patient use using a High Level Disinfectant method. High Level Disinfection is required for the Ranger GVL® when it is visibly soiled.
- The GlideScope® Ranger Video Baton is a non sterile, reusable device. When used as intended, it is protected from direct contact with the patient by the sterile, single-use GVL® Stat. Low Level Disinfection is recommended for the Ranger Video Baton after every patient use. High Level Disinfection is required for the video baton when it is visibly soiled.

1 Disconnect the Ranger GVL® or Video Baton from the monitor.

2 Place the cleaning cap over the connector as shown. Turn counter-clockwise to lock in place.

- During cleaning, the protective cap must be inserted as shown to protect the cable connector.

Ranger GVL®

Ranger Single Use Video Baton

3 Wash the Ranger GVL® or Video Baton manually to remove all foreign material from the surface of the device.

- Chemical compatibility and disinfection methods are detailed in the user's manual.
- To clean the exterior of the monitor, wipe with IPA (70% isopropyl alcohol) bleach (100ppm) or a mild detergent and water.

For more detailed cleaning instructions see the GlideScope® Ranger User's Manual.

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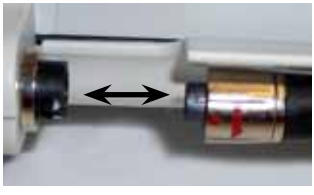
Attaching/Detaching the GlideScope® Ranger GVL or Ranger Single Use Video Baton



1. Insert the Ranger GVL® or Video Baton cable into the port located on the face of the monitor so that the arrows on the cable and the monitor line up.

2. Detach the cable by turning the connector and gently pulling away from the monitor port.

Attaching/Detaching the GlideScope® Ranger Video Baton and Stat

1. To ensure proper insertion, match the GlideScope® logo on the side of the video baton and the GVL® Stat. Insert the Ranger Video Baton into the sterile, single-use GVL® Stat until it clicks into place.

2. Detach the video baton from the GVL® Stat by grasping the base of the video baton and pulling firmly.

IMPORTANT! A used GVL® Stat is a biohazard and should be disposed of in a manner consistent with local directives in the user's jurisdiction.

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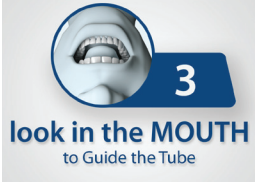
The GlideScope® 4-Step Technique

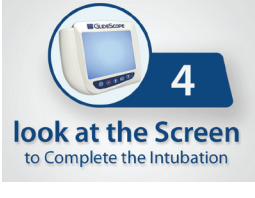
Looking directly into the patient's mouth and with the GlideScope® in the left hand, introduce the video laryngoscope into the midline of the oral pharynx.

With the laryngoscope inserted, look to the monitor to identify the epiglottis, then manipulate the scope to obtain the best glottic view.



Looking directly into the patient's mouth, not at the screen, carefully guide the distal tip of the tube into position near the tip of the laryngoscope.

It is important to look into the mouth at this step to avoid injuring the tonsils or soft palate.



Look to the monitor to complete the intubation; gently rotate or angle the tube to redirect as needed.

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Tips for GlideScope® Video Laryngoscope Insertion

- Verathon® recommends inserting the GlideScope® Video Laryngoscope down the midline of the tongue to the epiglottis.
- The GlideScope® video laryngoscope may be used to produce a MacIntosh indirect lift of the epiglottis or a Miller lift.
- Intubations using GlideScope® Video Laryngoscopes require approximately 0.5kg-1.5kg of lifting force.
- Use of an endotracheal tube stylet is recommended. The GlideRite® Rigid Stylet has been designed to complement the angle of the GlideScope® video laryngoscope to facilitate intubation. A malleable stylet may be used with a 60°- 90° angle.

- To aid the passage of the endotracheal tube, withdraw the stylet (approx. 5 cm) while gently advancing the ETT. A 1 cm adjustment (withdrawal) of the laryngoscope also may be beneficial to reduce the viewing angle and allow the glottis to drop.

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0900-1436-06-60

GlideScope®
Video Laryngoscopes

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GlideScope® Products and Systems

		REUSABLE				SINGLE USE STATS			
GVL® Size		GVL® 2	GVL® 3	GVL® 4	GVL® 5	GVL® 1	GVL® 2	GVL® 3	GVL® 4
Patient Weight		1.8 - 10 kg	10 kg - Adult	40 kg - Morbidly Obese	40 kg - Morbidly Obese	< 3.6 kg	1.8 - 10 kg	10 kg - Adult	40 kg - Morbidly Obese
Cobalt AVL	Video Baton 1-2					✓	✓		
	Video Baton 3-4							✓	✓
GlideScope® GVL		✓	✓	✓	✓				
Ranger			✓	✓					
Ranger Single Use	Video Baton 1-2					✓	✓		
	Video Baton 3-4							✓	✓
GlideRite® Rigid Stylet*				✓				✓	

Cobalt AVL System (single use)

GVL® System (reusable)

Ranger System (reusable)

Ranger Single Use System

Note: System configurations vary. The Cobalt AVL and Ranger Single Use Video Batons are reusable.

*For use with endotracheal tubes 6.0 mm and larger.

GlideScope® Product Specifications

SYSTEM MONITORS

Cobalt AVL Monitor

Color, 6.4in (diagonal), VGA 640 x 480
Height: 190 mm
Width: 225 mm
Depth: 80 mm
Weight: 1.0 kg

GVL® Monitor

Color, 6.4in (diagonal), 440 x 234
Height: 167 mm
Width: 207 mm
Depth: 83 mm
Weight: 1.4 kg

Ranger Monitor

Color, 3.4in (diagonal), 480 x 234
Height: 168 mm
Width: 173 mm
Depth: 49 mm
Weight: 0.56 kg

SINGLE USE SYSTEM COMPONENTS

Cobalt AVL Video Baton 1-2

Length: Camera tip to SS ring to handle: 66mm
Height of camera: 6 mm
Width of camera: 7 mm
Cable length: 194.5 cm
Weight: 170 g

Cobalt AVL Video Baton 3-4

Length: Camera tip to SS ring: 100 mm
Height of camera: 11 mm
Width of camera: 11 mm
Cable length: 193 cm
Weight: 230 g

Ranger Video Baton 1-2

Length: Camera tip to handle: 40 mm
Height of camera: 6 mm
Width of camera: 7 mm
Cable length: 86.4 cm
Weight: 95 g

Ranger Video Baton 3-4

Length: Camera tip to SS ring: 104.1 mm
Height of camera: 10.7 mm
Width of camera: 10.9 mm
Cable length: 86.4 cm
Weight: 141 g

GVL® 1 and 2

STAT length (tip to handle): 38 mm/51 mm
Thickness (height) at camera: 8.7 mm/8.7 mm
Width at camera: 9.9 mm/10.9 mm

GVL® 3 and 4

STAT length (tip to handle): 80 mm/95 mm
Thickness (height) at camera: 16 mm/16 mm
Width at camera: 16 mm/20 mm

Note: The Cobalt AVL and Ranger Single Use Video Batons are reusable.

REUSABLE SYSTEM COMPONENTS

GVL® 2

Blade length (tip to handle): 47 mm
Thickness (height) at camera: 14.5 mm
Width at camera: 18 mm

GVL® 3

Blade length (tip to handle): 82 mm
Thickness (height) at camera: 14.5 mm
Width at camera: 20mm

GVL® 4

Blade length (tip to handle): 102 mm
Thickness (height) at camera: 14 mm
Width at camera: 27 mm

GVL® 5*

Blade length (tip to handle): 102 mm
Thickness (height) at camera: 14 mm
Width at camera: 27 mm

Ranger GVL® 3

Blade length (tip to handle): 78mm
Thickness (height) at camera: 14.5 mm
Width at camera: 14 mm

Ranger GVL® 4

Blade length (tip to handle): 89 mm
Thickness (height) at camera: 14.5 mm
Width at camera: 19 mm

**The GVL® 5 is designed to accommodate anatomical anomalies sometimes associated with bariatric patients.*

VERATHON

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The GlideScope video laryngoscopy systems are CE marked in accordance with the Medical Device Directive, and the Verathon Inc. quality system is Quality System Certified to ISO 13485:2003 standards. US Patent No. 6,655,377; 6,543,447; Other patents pending.
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0900-2067-03-86

Important Information

Statement of Prescription

Federal (USA) law restricts this device for sale by or on the order of a physician.

The Ranger System should be used only by individuals who have been trained and authorized by a physician, or by health care providers who have been trained and authorized by the institution providing patient care.

Intended Use

The Ranger System is intended for use by qualified medical professionals to obtain a clear, unobstructed view of the vocal cords for medical procedures. The Ranger System is designed for field (military and pre-hospital) use.

⚠ Warnings and Cautions

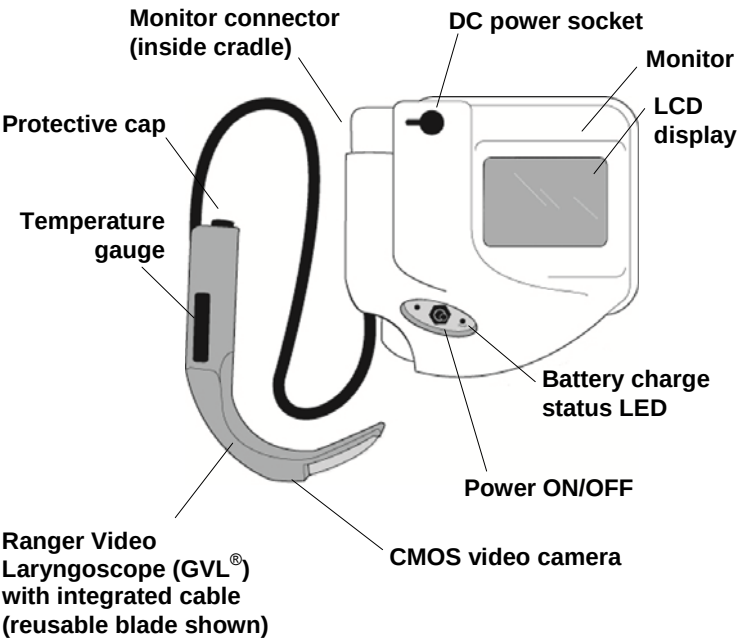
CAUTION. Risk of permanent equipment damage.
Do not expose the Ranger GVL® or Ranger Video Baton to temperatures above 140° F (60° C). Do not disinfect the Ranger GVL® or Ranger Video Baton using devices such as autoclaves, ultrasonic cleaners, or pasteurizers. Use of such methods will cause permanent device damage and void the warranty. Refer to the User's Manual for a list of approved cleaning procedures and products.

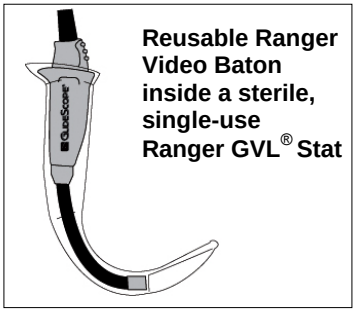
CAUTION: Risk of equipment damage.
Failure to cover the cable connector port with the protective cap prior to cleaning may result in water ingress and potential device failure.

CAUTION: Risk of equipment damage.
Bleach can be used on the baton but with special attention to the connector. Bleach may corrode the stainless steel inserts and damage the connector pins.

CAUTION: Potential interference with other devices.
The Ranger GVL® or Ranger Video Baton must be used with the supplied cables to maintain electromagnetic interference (EMI) within certified limits.

Components and Features





Preparing for First Use

Prior to using the Ranger System for the first time:

1. Charge the monitor battery.
2. Perform a functional check:
   - Connect a Ranger GVL® or Ranger Video Baton to the monitor
   - Turn the system on by pressing the on/off switch
   - Observe the monitor screen to verify that an image is being received from the Ranger GVL® or Ranger Video Baton

If the GVL®, Video Baton or Stat are stored in cold conditions, additional warming time may be required for optimal performance of the anti-fog feature.

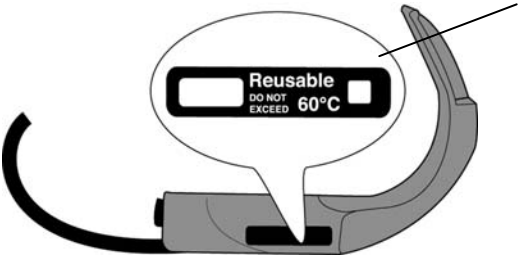
Cleaning, Disinfecting, and Maintenance

To ensure patient safety, users should perform a routine inspection of the Ranger GVL®, Ranger Video Baton, or GVL® Stat before every use to ensure that all endoscopic components are free of unintended rough surfaces, sharp edges, protrusions or cracks.

If inspection reveals any faults in the components, contact Verathon Medical Customer Care or your local GlideScope® representative. All repairs must be performed by an authorized Verathon Medical Service Center.

Caution: Risk of permanent device damage!

Do not expose the Ranger GVL® or Ranger Video Baton to temperatures above 140° F (60°C).



The temperature indicator turns black when the GVL® or video baton is exposed to temperatures above 140° F (60° C)

General Cleaning and Disinfection Information

Table 1: Risk Assessment

Device	Sterile	Use	Spaulding's CDC Classification	Disinfection			Sterilization
				Low Level	Int. Level	High Level	
Ranger GVL®	Non-sterile	Reusable	Semicritical			X	
Ranger GVL® Stat	Sterile	Single use	Semicritical				
Ranger Video Baton*	Non-sterile	Reusable	Noncritical	X			
Stylet	Non-sterile	Reusable	Semicritical			X	
Ranger Video Monitor#	Non-sterile	Reusable	Noncritical	X			
DVR for Ranger#	Non-sterile	Reusable	Noncritical	X			
Cradle#	Non-sterile	Reusable	Noncritical	X			
Clam Shell Storage Case	Non-sterile	Reusable	Noncritical	X			

It is understood that all items in this chart will be used as intended.

Key:

* The Ranger Video Baton is a nonsterile, reusable device which is protected from contact with mucous membranes and non-intact skin by the Stat (sterile, single-use) when used as intended. Low Level Disinfection is recommended for the Ranger Video Baton after every patient use. High Level Disinfection is required for the Video Baton when it is visibly soiled.

Disinfect monitor, DVR and cradle when they are visibly soiled and on a regular basis as per a schedule established by the medical care facility or provider.

– Shaded areas - not required/not compatible with device materials.

– Checked boxes (x) show minimum requirement.

– Unshaded areas show permissible levels of disinfection based on compatibility with device materials.

Warning:

Disinfectants and cleaning methods listed are recommended by Verathon based on compatibility with device materials. Refer to the label instructions for guidance on disinfection efficacy and appropriate clinical uses.

Caution: Meticulous cleaning must precede any disinfection process, to ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen process to reach all the surfaces of the device.

Availability of cleaning products varies by country, and we are unable to test products in every market. Please use the list of recommended chemicals in this manual to compare with products available locally.

Note: When using any of the chemicals listed below, read and comply with product use instructions in all applications.

Table 2: Chemical Compatibility and Disinfection Methods for Ranger GVL® and Ranger Video Batons

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Enzymatic debridement agent/ detergent	General hospital grade	As per instructions	N/A	Surface cleaning only in preparation for disinfectant
Isopropyl Alcohol Solution	70%	70% used to wipe down with minimum 1 minute exposure	Low	
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20°C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20°C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% - exposure for minimum 12 minutes at 50 to 56°C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Bleach (Sodium Hypochlorite)	Up to 8000ppm	5000ppm – exposure for 10 minutes at 20°C	High	Corrosive for connector pins and SS ring
		500ppm – used to wipe down with minimum 1 minute exposure	Low	Noncorrosive at ≤ 500ppm

Table 3: Chemical Compatibility and Disinfection Methods for GlideRite® Rigid Stylet

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20°C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20°C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% - exposure for minimum 12 minutes at 50 to 56°C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Isopropyl Alcohol Solution	70%	70% - exposure for 10 minutes at 20°C	Intermediate	
		70% used to wipe down with minimum 1 minute exposure	Low	
Bleach (Sodium Hypochlorite)	≤ 500ppm	500ppm – used to wipe down with minimum 1 minute exposure	Low	Noncorrosive at ≤ 500ppm
Enzymatic debridement agent/ detergent	General hospital grade	As per instructions	N/A	Surface cleaning only in preparation for disinfectant
N/A	Tested in autoclave (steam cycle)	Minimum 4 minute 132°C pre-vacuum steam sterilization cycle	See comments on right	Based on requests from users, an autoclave cycle has been established for the Stylet for ease of use

Cleaning and Disinfecting the GlideScope® Ranger GVL® and Ranger Video Baton

Caution: Meticulous cleaning must precede any disinfection process, to ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen process to reach all the surfaces of the device.

The Ranger GVL® is a non-sterile reusable device. It is recommended that the Ranger GVL® is cleaned and disinfected after every patient use, using a High Level Disinfectant method. High Level Disinfection is required for the GlideScope® GVL when it is visibly soiled.

The Ranger Video Baton is a non-sterile, reusable device which is protected from direct contact with the patient by the Stat (sterile, single use) when used as intended, Low Level Disinfection is recommended for the Ranger Video Baton after every patient use. High Level Disinfection is required for the Ranger Video Baton when it is visibly soiled.

CAUTION: Risk of equipment damage.

Bleach can be used on the baton but with special attention to the connector. Bleach may corrode the stainless steel inserts and damage the connector pins.

Availability of disinfection products varies by country, and we are unable to test products in every market. Please use the list of recommended disinfectants in the User's Manual to compare with products available locally.

For more detailed cleaning instructions see the Ranger System User's Manual on our Web site at http://www.verathon.com/gs_manuals.htm

Battery Replacement and Device Repair

Under normal operating conditions, the monitor battery will last 2 - 3 years; or approximately 500 charge/discharge cycles.

The battery is not user-replaceable. In case of battery malfunction, do not attempt to replace the monitor battery. Any attempts to replace the battery by unauthorized service technicians may cause serious harm to the user and will void the warranty. Please contact your Verathon Medical Customer Care Representative for more information on battery replacement.

Device Disposal

Disposal of this device can be coordinated through your Verathon Service Center in accordance with WEEE requirements.

Specifications

General Specifications

Classification:	Electrical Class II, Applied Part BF
Line Voltage	Range: 100–240 VAC, 50 & 60 Hz
Line Current:	MAX 0.25 A

Operating and Storage Conditions:

Operating Conditions

Temperature:……...…10°C to 40°C

Relative Humidity:……..…....0 to 95%

Atmospheric Pressure:…….440 to 1060 hPa

Shipping and Storage Conditions

Temperature:……..……-20°C to 45°C

Relative Humidity:…….....0 to 95%

Atmospheric Pressure:…….440 to 1060 hPa

Charging Conditions

Temperature:……..…0°C to 40°C

Relative Humidity:…….....0 to 95%

Atmospheric Pressure:…….440 to 1060 hPa

Ingress Protection

IP68 up to 3 ft (1.0 m) for 60 minutes

Standards and Approvals

ISO 13485 Certificate No. 9235, CE Marking requirements met for Class 1 and Class 1 Sterile Devices, IEC 60601-2-18 (Second Edition, 1996), IEC 60601-1-2:2001 Medical Directive, US UL 60601-1 (First Edition), US UL 2601-1 (Second Edition), CAN/CSA C22.2 No. 601.1-M90, AU, CA, DK, IL, and US National Differences, as per CB Bulletin 107a, FCC Report of Measurements as per FCC CFR47 Part 18.

Symbol Directory

The following international regulatory symbols are found on Ranger System components and indicate compliance with international regulatory standards.

Symbol	Meaning
	Power connected to mains
	Power disconnected from mains
	Type BF equipment
	CE marking in accordance with the Medical Device Directive (CE0413 for Sterile Devices)
	Canadian Standards Association (CSA) mark of certification to applicable standards for electro-medical equipment
	Tested to Federal Communications Commission Requirements
	Caution – consult accompanying documents. Read instructions before connecting or operating.
	Subject to WEEE (Waste of Electronic Electrical Equipment) regulations.
	Electrical Class II

GLIDESCOPE®
Video Laryngoscopes

RANGER

Ranger and Ranger Single Use

User's Manual

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The GlideScope® technology is covered under US Patents (6,655,377) (6,543,447) as well as European Patent 1307131. Additional patents pending.

Information in this User's Manual and Quick Reference Guide may change at any time without notice. For the most up-to-date information, see the online manuals on verathon.com.

GlideScope® Video Laryngoscope systems are CE marked in accordance with the Medical Device Directive, and the Verathon Inc. quality is Quality System Certified to ISO 13485:2003 standards.

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PN:0900-2112-02-60

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Important Information

Product Description

GlideScope® Ranger is a portable, compact video laryngoscope that provides a clear, real-time view of a patient's airway enabling quick intubation.

Designed for “1st Pass Success” in military and emergency settings, the Ranger System features rugged, high-impact construction, patented blade angulation, a patented anti-fogging mechanism, and a non-glare monitor that is easily visible in bright light. The device is dependable in an array of field conditions, making it ideal for pre-hospital and critical care situations. The GlideScope® Ranger Video Laryngoscope has been granted Airworthiness Certification from the United States Army.

The Ranger is operational in seconds. It is compact for easy carrying and storage. The integrated, rechargeable lithium battery provides a minimum 90-minute continuous-use autonomy and allows for approximately 20 intubations per battery cycle (depending on usage).

Intended Use

Statement of Prescription

Federal (USA) law restricts this device for sale by or on the order of a physician.

The Ranger System should be used only by individuals who have been trained and authorized by a physician, or by health care providers who have been trained and authorized by the institution providing patient care.

Intended Use

Ranger video laryngoscopes are intended for use by qualified medical professionals to obtain a clear, unobstructed view of the vocal cords for medical procedures. The Ranger System is designed for field (military and pre-hospital) use.

Notice to All Operators

All operators should read this entire User's Manual prior to using the Ranger System. Failure to follow these instructions may result in patient injury, compromise the performance of the system, and may void the system warranty.

Verathon recommends that new Ranger users:

- Practice using the Ranger on a mannequin before clinical use
- Acquire clinical experience on patients without airway abnormalities

Refer to page 25 for recommended techniques.

Cautions

Caution. Risk of permanent equipment damage. Do not expose Ranger GVL® blades or Ranger Video Batons to temperatures above 140° F (60°C). Do not disinfect Ranger GVL® blades or Ranger Video Batons using devices such as autoclaves, ultrasonic cleaners, or pasteurizers. Use of such methods will cause permanent device damage and void the warranty. Refer to the Cleaning section for a list of approved cleaning procedures and products.

Electrical shock hazard. Refer servicing to qualified personnel.
This equipment has been tested and found to comply with the standards listed in the Approvals section of this manual. These limits are designed to provide reasonable protection against harmful interference in typical medical installations.

This equipment generates, uses, and can radiate radio frequency energy and if used properly is very unlikely to cause harmful interference to any other device(s) in the vicinity.

However, there is no guarantee that interference will not occur in a particular installation. Interference can be determined by turning the equipment on and off. If this equipment does cause interference with other devices, try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving device
- Increase the separation between equipment
- Connect the equipment to an outlet on a circuit different from that to which the other device(s) is (are) connected
- Consult your Verathon Medical Customer Care representative

NOTE: The Ranger System must be used with the supplied cables to maintain electromagnetic interference (EMI) within certified limits.

Users should be aware that portable and mobile equipment (cellular phones, etc.) may affect medical electrical equipment and take appropriate precautions during operation.

Introducing the GlideScope® Ranger System

The Ranger System is designed to provide an unobstructed view of the vocal cords through the use of advanced video technology.

The Ranger System, based on GlideScope® GVL technology, is an ideal tool for physicians and other healthcare providers who need to effectively manage standard to difficult airways in remote locations, pre-hospital, and other mobile, emergency situations. The GlideScope® Ranger is available in both reusable and single use models.

The GlideScope® Ranger is built to military specifications for prehospital and EMS settings. With a non-glare color monitor and anti-fogging mechanism, the Ranger provides a clear view of the airway, enabling quick intubation. Compact, portable and rugged, the Ranger is operational in seconds.

Ranger video laryngoscopes may be useful for the following procedures:

- First use intubations, replacing Direct Laryngoscopy (DL)
- Normal or restricted oropharyngeal views and assessment of the oropharynx
- Cormack-Lehane grades I - IV laryngeal views
- Trauma airways - excellent when dealing with blood and secretions in the airway
- Airway management in morbidly obese patients
- Patients requiring cervical spine immobilization
- Preterm and neonatal intubations
- Reintubation in Intensive Care Unit (ICU) settings
- Teaching the anatomy of the airway
- Supervision and documentation of the laryngoscopy
- Nasal tracheal intubations

- Insertion of transesophageal echocardiac probes
- Laryngoscopic foreign body removal
- Awake intubation for difficult airway management
- Insertion of double lumen tubes

GlideScope® Ranger System Components

Two interchangeable video laryngoscope systems are available for use with the Ranger Monitor:

- The reusable Ranger
- Ranger Single Use

Please refer to page 45 for a listing of Ranger System components and part numbers.

Reusable Ranger System

The Ranger System includes:

- The Ranger Video Monitor
- One reusable GVL® with an integrated video cable. The GVL® is comprised of a reusable, medical-grade plastic shell that houses a high resolution, autofocusing, CMOS camera, LED light source, an innovative anti-fogging mechanism. The GVL® device is available in two sizes. Additional units may be purchased separately.
- GlideRite® Rigid Stylet

Figure 1. Ranger GVL® System.

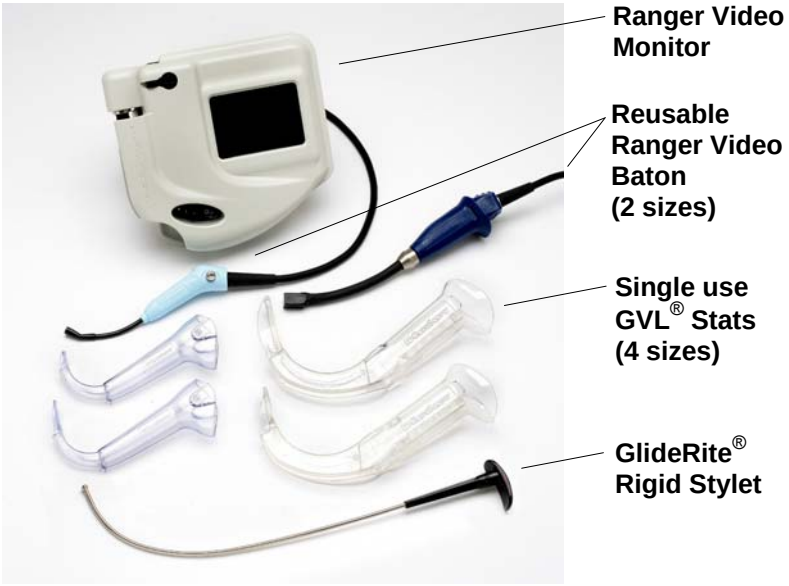
Ranger Single Use System

The Ranger Single Use System includes:

- The Ranger Video Monitor
- Reusable Ranger Video Baton with integrated video cable. The Ranger Video Baton is comprised of a reusable, high resolution, autofocusing, CMOS camera, LED light source, and an innovative anti-fogging mechanism. The Ranger Video Baton is available in two sizes and each baton supports two sizes of GVL® Stats.

- Single use GVL® Stats (four sizes available). The GVL® Stat is a disposable, medical-grade plastic shell that provides mechanical support and protection for the Ranger Video Baton during intubations.
- GlideRite® Rigid Stylet

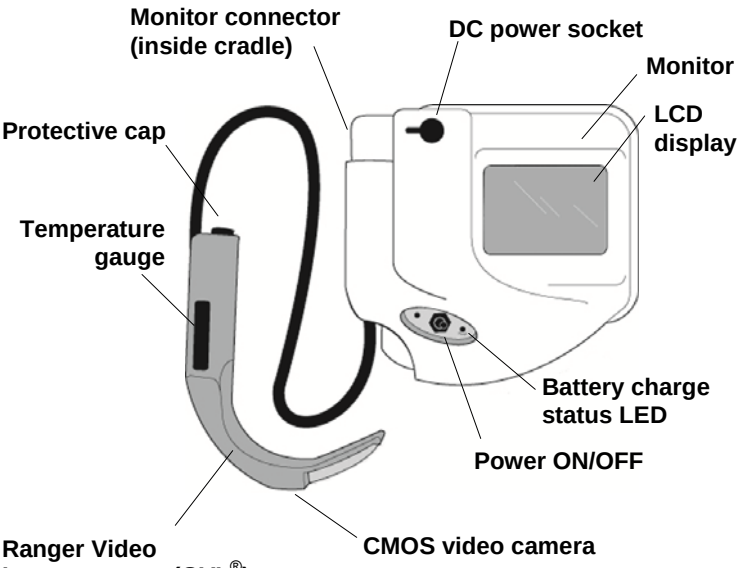
Figure 2. Ranger Single Use System.

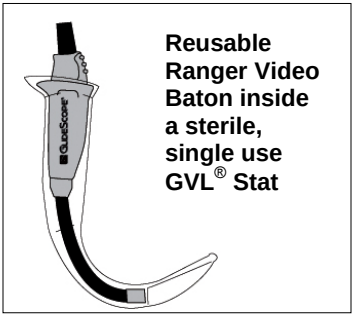


Displays, Controls, and Indicators

Ranger System components and features are illustrated in Figure 3.

Figure 3. GlideScope® Ranger components.





Getting Started

Initial Inspection

Upon receipt, inspect the components of the GlideScope® Ranger System for any obvious physical damage that may have occurred during shipment. Verathon recommends that the inspection be performed by a biomedical engineer or other qualified professional who is familiar with electronic medical devices.

If any of the components are missing or damaged, notify the carrier and Verathon Medical Customer Care immediately at:

- 800.331.2313 (Canada and US)
- 425.867.1348 (International)
- +31.30.68.70.570 (Europe)

For additional contact information, please see page 44.

Preparing for First Use

Prior to using the Ranger System for the first time, perform the following steps:

1. Charge the Battery (page 13).
2. Connect the Ranger GVL® to the monitor (page 18).
3. Perform a functional check (page 21).

1. Charge the Battery

Important:

- The battery must be fully charged before first use.
- **The unit will not operate while charging. If it is switched on during charging, the charging light will**

flash alternatively green and red-orange.

WARNING! The battery can be fully charged from 0-32° C. The battery will not fully charge if the ambient temperature is above 90° F (32° C).

To charge the battery:

1. Ensure that the power switch is in the OFF position.

2. Unscrew the DC socket protective cap (Figure 4) on the front of the monitor (a screwdriver or small coin may be used).

3. Connect the monitor to an AC power source (wall outlet) using the provided DC power supply and AC power cord as shown in Figure 4.

   The charge status LED will turn orange, indicating that the charging cycle has begun.

   When the charge status LED turns green, the charging cycle is complete (Figure 5).

Figure 4. Connect the Ranger Monitor to AC power to charge the battery.

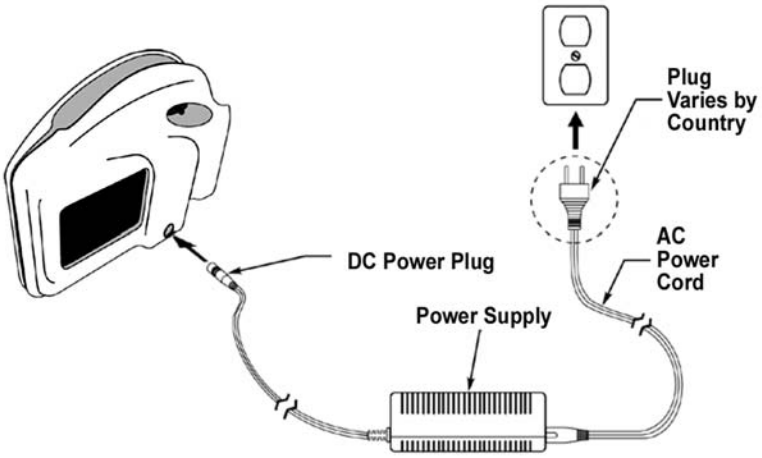


Figure 5. The charge status LED will turn green when the battery is fully charged.

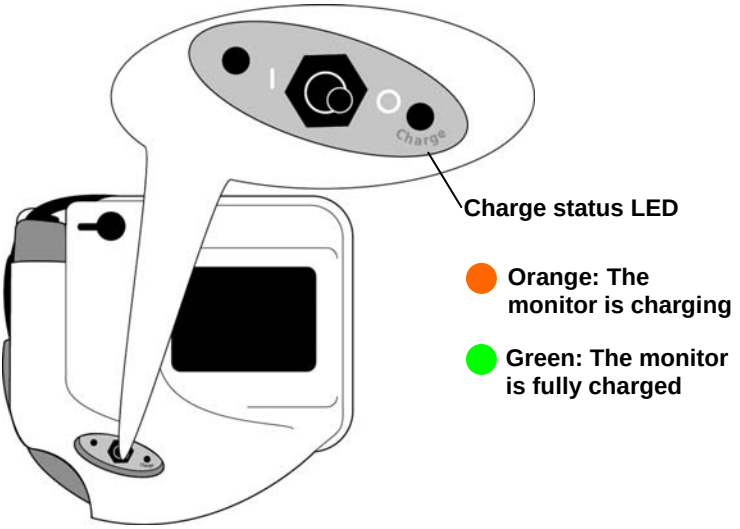
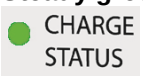
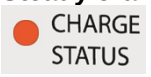


Table 1: Charge status LED indicators.

Indicator	Meaning
Steady green 	Battery is fully charged.
Flashing green	Battery power is low. LED flashes for approximately 5 minutes before shutting off.
No LED	The battery is completely depleted and needs to be recharged.
Steady orange 	The monitor is connected to an AC power source and the battery is charging.
Flashing orange	A flashing orange charging light indicates a battery problem. When this happens: ◆ Disconnect the DC plug ◆ Make sure the switch is on CHARGE (or OFF position) ◆ Reconnect the DC plug ◆ If the orange LED is still flashing, the battery has failed. Return the unit for repair

Powering the GlideScope® Ranger System

The monitor contains a lithium battery that provides power to the Ranger System. The system must be operated exclusively on battery power, without a connection to an AC power source. Under normal conditions, a fully charged battery will last approximately 90 minutes.

IMPORTANT! The battery needs to be fully charged on first receipt. For instructions on charging the battery, see "Charge the Battery" on page 13.

To supply power to the monitor:

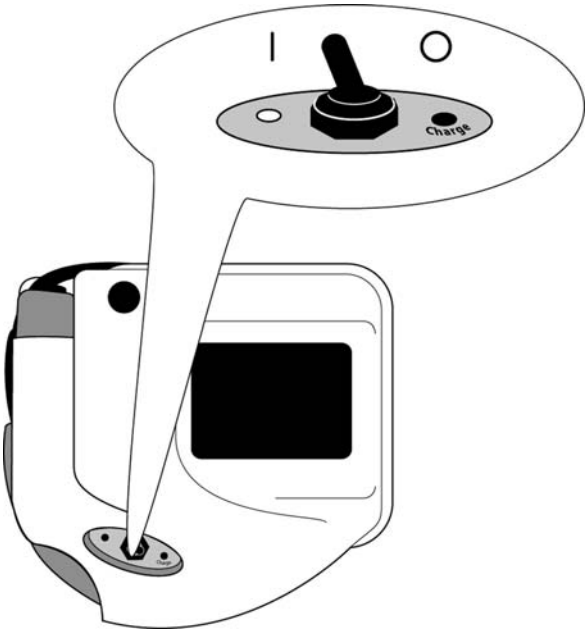
1. Flip the power switch located on the front of the monitor to the ON position.

   NOTE: The system will not work when it is connected to an AC power source.

2. Observe the monitor screen to verify that an image is being displayed.

3. Remove the GVL® or video baton from its cradle. The unit is now ready for use.

Figure 6. Power switch in ON position.

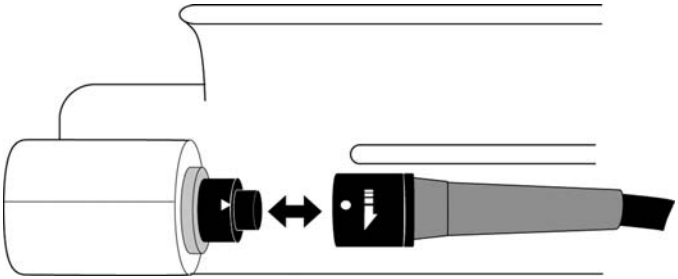


2. Attaching the GlideScope® Ranger GVL® or Ranger Video Baton to the Monitor

1. Ensure that the power switch is in the OFF position.

2. Insert the Ranger GVL® or Ranger Video Baton cable into the port located on the face of the monitor so that the arrows on the cable and the monitor line up (Figure 7).

Figure 7. Connecting the Ranger Video Cable to the monitor.



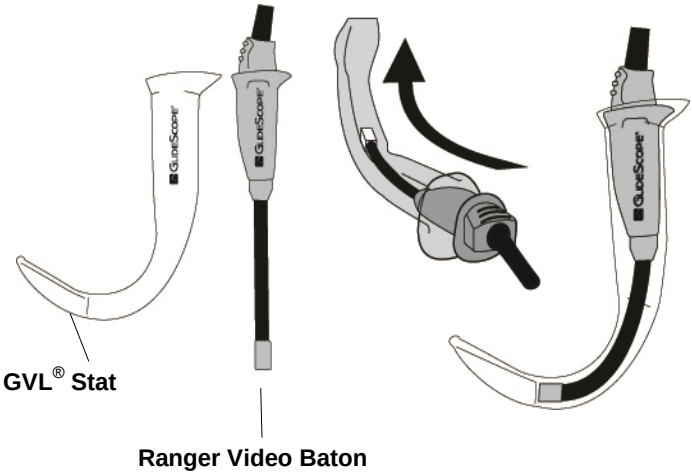
Inserting the Ranger Video Baton into the GVL® Stat

GlideScope® GVL® Stats are disposable, single-use, sterile plastic shells which provide mechanical support and protection from contamination for the reusable Ranger Video Baton during intubation.

To insert the Ranger Video Baton into the GVL® Stat:

1. Ensure proper insertion by matching the logos on the side of the video baton and the GVL® Stat. Insert the Ranger Video Baton into the sterile, single use GVL® Stat until it clicks into place (Figure 8).

Figure 8. Inserting the Ranger Video Baton into the single use GVL® Stat.



2. Take care to avoid inserting the video baton backwards (Figure 9)

   If the video baton is inserted incorrectly and becomes stuck, you may insert a tongue depressor into the GVL® Stat to release the video baton.

Figure 9. Assure that the handgrip on the video baton and the hand grip on the GVL® Stat are aligned. In this image, the handgrips are facing in opposite directions.

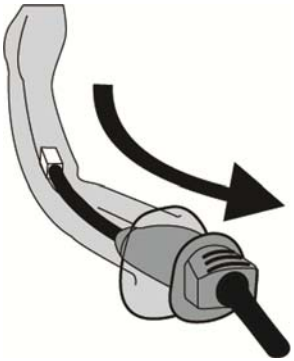
NOTE: Visually inspect the GVL® Stat to ensure that all external surfaces are free of unintended rough surfaces, sharp edges, protrusions, or cracks.

Detaching the GVL® Stat from the Ranger Video Baton

The GVL® Stat is a single-use device. After each use, it should be removed from the Ranger Video Baton and disposed of properly.

To detach the Ranger Video Baton from the GVL® Stat, grasp the handle of video baton and pull firmly (Figure 10).

Figure 10. Detaching the video baton from the GVL® Stat.



IMPORTANT! A used GVL® Stat is a biohazard and should be disposed of in a manner consistent with local directives in the user's jurisdiction.

GlideScope® Anti-Fog Feature

To ensure optimal results of the anti-fog heating feature on the GlideScope® Video Laryngoscope perform the following steps:

Single Use Model:

If using the GlideScope® Ranger Single Use model, follow steps 1, 2 and 3 recommended below.

Reusable Models:

If using the GlideScope® Ranger model, attach the GVL® blade to the system then follow steps 2 and 3.

1. Prior to use, open the GVL® Stat pouch, but do not remove the Stat from the packaging (to keep the Stat clean until ready for use). With the Stat still in the package, insert the video baton into the Stat. The video baton must be securely seated in the GVL® Stat for efficient heating of the Stat.

2. Turn on the Ranger monitor to activate the anti-fog heating feature.

3. After 30 seconds to 120 seconds, the anti-fog feature should be fully effective, depending on the ambient temperature and humidity where the equipment is being stored and/or used.

If the GVL®, Video Baton or Stat are stored in cold conditions, additional warming time may be required for optimal performance of the anti-fog feature.

3. Perform a Functional Check

To assure that the GlideScope® Ranger System is functioning properly, perform a functional check prior to first use.

To perform a functional check:

1. Fully charge the monitor battery (see page 13).

2. Connect the Ranger GVL® or Ranger Video Baton to the monitor (see page 18).

3. Turn the Ranger on by moving the power switch to the ON position.

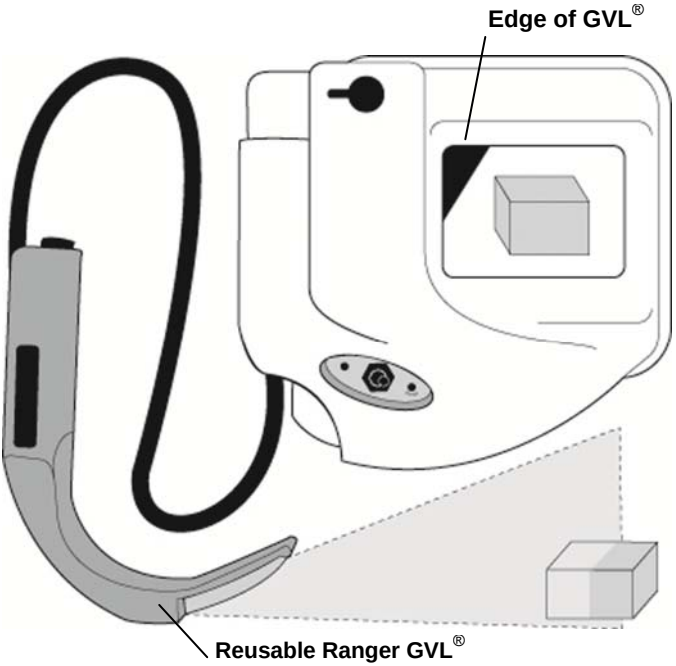
4. Observe the monitor screen to verify that an image is being received from the GlideScope®.

   NOTE: The upper left corner of the LCD screen will

display a small portion of the GVL® blade (Figure 11). The blade is captured in the view due to the wide-angle properties of the camera lens. This view provides a frame of reference during the intubation and assures that the orientation of the image is correct in the monitor.

Please contact your Verathon Medical Customer Care representative if your Ranger does not function as described above.

Figure 11. When the power is on, one corner of the Ranger GVL® will be visible in the display.



Optional Accessory

GlideScope® DVR for Ranger

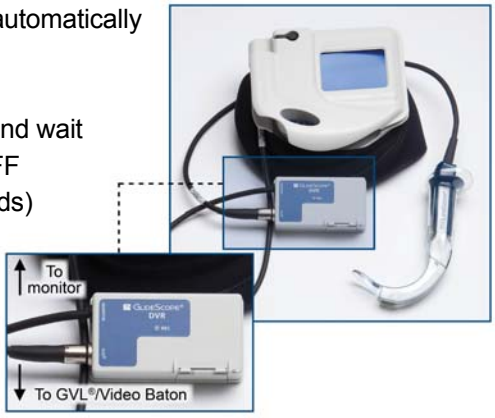
The GlideScope® DVR (Digital Video Recorder) is designed to record intubations performed with the GlideScope® Ranger Video Laryngoscope.

INSTRUCTIONS FOR USE

Recording

1. Ensure Monitor is OFF and SD card no larger than 2GB is inserted into DVR
2. Connect GVL®/Video Baton cable to DVR
3. Connect DVR cable to Monitor
4. Turn Monitor ON
5. REC LED will light up in solid RED after approximately 3 seconds
6. DVR begins recording automatically

Playback



1. Turn the Monitor OFF and wait until REC LED turns OFF (approximately 3 seconds)
2. Open DVR door and remove SD card by pushing and releasing
3. Insert the SD card in an SD card reader connected to a PC
4. Browse to the DVMPG4 folder in SD card drive
5. Playback any recordings with .ASF extensions

Troubleshooting

If REC LED is blinking, there may be a problem with recording. Possible causes:

1. Connections are not secure. Verify cable connections:
   - GVL®/Video Baton to DVR
   - DVR to Monitor
2. SD card is missing or not inserted properly. Turn Monitor OFF; ensure SD card is properly inserted and try again.
3. SD card is defective. Try another SD Card.
4. Problem with GVL®/Video Baton. Ensure proper function by connecting GVL®/Video Baton directly to Monitor.

If the problem persists, contact Verathon Customer Care.

Cleaning

Clean the exterior of the DVR with IPA (70% Isopropyl Alcohol Solution) wipes.

Clinical Application Tips

The GlideScope® 4-Step Technique

Verathon recommends using the GlideScope® 4-Step Technique as outlined below:

1. In the Mouth: looking directly into the patient's mouth and with the GlideScope® GVL ® in the left hand, introduce the GlideScope® Video Laryngoscope into the midline of the oral pharynx.

2. At the Screen: With the laryngoscope inserted, look at the monitor to identify the epiglottis, then manipulate the scope to obtain the best glottic view.

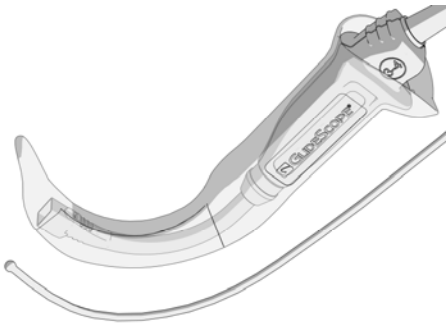
3. In the Mouth: looking directly into the patient's mouth, not at the screen, carefully guide the distal tip of the tube into position near the tip of the laryngoscope.

4. At the Screen: Look to the monitor to complete the intubation; gently rotate or angle the tube to redirect as needed.

Tips for GlideScope® Ranger Video Laryngoscope Insertion

- The GlideScope® Ranger is designed to be inserted down the midline of the tongue to the epiglottis.
- The Ranger GVL® may be used to produce a Macintosh indirect lift of the epiglottis or a Miller lift.
- Intubations using the Ranger GVL® only require approximately 1 to 3.5 lb (0.5 - 1.5 kg) of lifting force.
- The use of an endotracheal tube stylet is recommended. The GlideRite® Rigid Stylet has been designed to complement the angle of the GVL® to facilitate intubation, and should be used with endotracheal tubes 6.0mm and larger. A malleable stylet may be used with a 60° - 90° angle.
- To aid the passage of the endotracheal tube when at the vocal cords, gradually withdraw the stylet approximately 2 inches (5 cm). A 1cm adjustment (withdrawal) of the laryngoscope may be beneficial to reduce the viewing angle and allow the glottis to drop.

Figure 12. The curvature of the GlideRite® Rigid Stylet complements that of the Ranger GVL® and GVL® Stat.



Tips for Working with Endotracheal Tubes

- Insert the ET tube behind or immediately adjacent to the GVL® Stat.
- Do not insert the stylet into the larynx during intubation.
- You can bend the proximal tip of the stylet backward to permit one-handed operation of the ET tube.
- Carefully introduce the distal end of the ET tube between the vocal folds.
- When introducing the GlideScope® and/or the endotracheal tube, look directly into the mouth to avoid damaging the endotracheal tube cuff, the patient's teeth, or the soft tissues such as the soft palate or tonsils.
- Advance the ET tube while simultaneously withdrawing the stylet with the thumb (Figure 13). The stylet should be withdrawn approximately 5 cm (2in).

Avoid excessive lifting or pushing of the glottis by the GVL® Stat. Maximum laryngeal exposure may not facilitate intubation; reducing the elevation applied to the laryngoscope may make inserting the ET tube easier.

Figure 13. The GlideRite® Rigid Stylet **is designed for one-handed removal from the endotracheal tube**.

Cleaning, Disinfecting and Maintenance

Cleaning the GlideScope® Ranger system is an important part of maintaining the system. Make sure that the system is clean before each use. You should also examine the system periodically to make sure it is operating correctly.

General Maintenance Information

Periodic inspections should be performed to ensure safe and effective operation. It is recommended that a qualified technician perform a full visual inspection of all components at least every three months.

The technician should check for the following items:

- External damage
- Damage to the power supply
- Connectors and cable insulation integrity

To ensure patient safety, users should perform a routine inspection of the GlideScope® Video Laryngoscope before every use to ensure that all endoscopic components are free of unintended rough surfaces, sharp edges, protrusions or cracks. If inspection reveals any faults in the components, contact Verathon Medical Customer Care. All repairs must be performed by an authorized Verathon Medical Service Center.

Caution. Risk of permanent equipment damage. Do not expose the Ranger GVL® or Ranger Video Baton to temperatures above 140° F (60°C). Do not disinfect the Ranger GVL® or Ranger Video Baton using devices such as autoclaves, ultrasonic cleaners, or pasteurizers. Use of such methods will cause permanent device damage and void the warranty. Refer to the Cleaning section for a list of approved cleaning procedures and products.

General Cleaning and Disinfection Information

Table 2: Risk Assessment

Device	Sterile	Use	Spaulding's CDC Classification	Disinfection			Sterilization
				Low Level	Int. Level	High Level	
Ranger GVL®	Non-sterile	Reusable	Semicritical			X	
Ranger GVL® Stat	Sterile	Single use	Semicritical				
Ranger Video Baton*	Non-sterile	Reusable	Noncritical	X			
Stylet	Non-sterile	Reusable	Semicritical			X	
Ranger Video Monitor#	Non-sterile	Reusable	Noncritical	X			
DVR for Ranger#	Non-sterile	Reusable	Noncritical	X			
Cradle#	Non-sterile	Reusable	Noncritical	X			
Clam Shell Storage Case	Non-sterile	Reusable	Noncritical	X			

It is understood that all items in this chart will be used as intended.

Note:

* The Ranger Video Baton is a nonsterile, reusable device which is protected from contact with mucous membranes and non-intact skin by the Stat (sterile, single use) when used as intended. Low Level Disinfection is recommended for the Ranger Video Baton after every patient use. High Level Disinfection is required for the Video Baton when it is visibly soiled.

Disinfect monitor, DVR and cradle when they are visibly soiled and on a regular basis as per a schedule established by the medical care facility or provider.

– Shaded areas - not required/not compatible with device materials.

– Checked boxes (x) show minimum requirement.

– Unshaded areas show permissible levels of disinfection based on compatibility with device materials.

Warning:

Disinfectants and cleaning methods listed are recommended by Verathon based on compatibility with device materials. Refer to the label instructions for guidance on disinfection efficacy and appropriate clinical uses.

Caution: Meticulous cleaning must precede any disinfection process, to ensure all foreign matter is removed from the surface of the device. This allows the active ingredients of the chosen process to reach all the surfaces of the device.

Availability of cleaning products varies by country, and we are unable to test products in every market. Please use the list of recommended chemicals in this manual to compare with products available locally.

Note: When using any of the chemicals listed below, read and comply with product use instructions in all applications.

Table 3: Chemical Compatibility and Disinfection Methods for Ranger GVL® and Ranger Video Batons

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Enzymatic debridement agent/ detergent	General hospital grade	As per instructions	N/A	Surface cleaning only in preparation for disinfectant
Isopropyl Alcohol Solution	70%	70% used to wipe down with minimum 1 minute exposure	Low	
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20°C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20°C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% - exposure for minimum 12 minutes at 50 to 56°C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Bleach (Sodium Hypochlorite)	Up to 8000ppm	5000ppm – exposure for 10 minutes at 20°C	High	Corrosive for connector pins and SS ring
		500ppm – used to wipe down with minimum 1 minute exposure	Low	Noncorrosive at ≤ 500ppm

Refer to page 35 for Disinfecting Steps.

Table 4: Chemical Compatibility and Disinfection Methods for GlideRite® Rigid Stylet

Active Ingredient	Compatibility	Conditions	Disinfection Level	Caution/ Comments
Glutaraldehyde	Up to 3.4%	2.0% – exposure for minimum 20 minutes at 20°C or as per manufacturer's instructions	High	
Ortho-Phthalaldehyde	0.55%	0.55% – exposure for 12 minutes at 20°C or as per manufacturer's instructions	High	
Peracetic Acid	0.2%	0.2% - exposure for minimum 12 minutes at 50 to 56°C or as per manufacturer's instructions	See comments on right	Classified as a chemical sterilant
Isopropyl Alcohol Solution	70%	70% - exposure for 10 minutes at 20°C	Intermediate	
		70% used to wipe down with minimum 1 minute exposure	Low	
Bleach (Sodium Hypochlorite)	≤ 500ppm	500ppm – used to wipe down with minimum 1 minute exposure	Low	Noncorrosive at ≤ 500ppm
Enzymatic debridement agent/ detergent	General hospital grade	As per instructions	N/A	Surface cleaning only in preparation for disinfectant
N/A	Tested in autoclave (steam cycle)	Minimum 4 minute 132°C pre-vacuum steam sterilization cycle	See comments on right	Based on requests from users, an autoclave cycle has been established for the Stylet for ease of use

Refer to page 39 for Cleaning & Disinfecting Steps.

Cleaning and Disinfecting the GlideScope® Ranger Systems

Warning

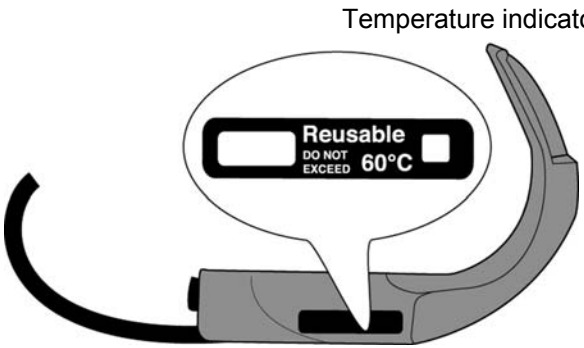
Make sure that you do not overheat the Ranger GVL® or Ranger Video Baton during cleaning. You can monitor the color of the temperature gauge on the handle to avoid overheating the Ranger GVL® or Ranger Video Baton

Caution. Risk of permanent equipment damage.

Do not expose Ranger GVL® or Ranger Video Batons to temperatures above 140° F (60°C).

The manufacturer's warranty is void if the product is exposed to temperatures above 60°C (140°F).

Figure 14. Monitor the color of temperature indicator to avoid overheating the GVL® or the video baton



■	The temperature indicator turns black if the Ranger is heated above 60°C (140°F).
■ □	A gray or white indicator does not indicate overheating.

Caution

Do not use autoclaves or pasteurizers for the Ranger systems.

Use of such methods will cause permanent device damage and void the warranty.

Bleach can be used on the baton but with special attention to the connector. Bleach may corrode the stainless steel inserts and damage the connector pins.

Cleaning the GlideScope® Ranger GVL®

The Ranger GVL® is a non-sterile reusable device. It is recommended that the Ranger GVL® is cleaned and disinfected after every patient use, using a High Level Disinfectant method as defined in Table 3. High Level Disinfection is required for the Ranger GVL® when it is visibly soiled.

To clean the GlideScope® Ranger GVL®

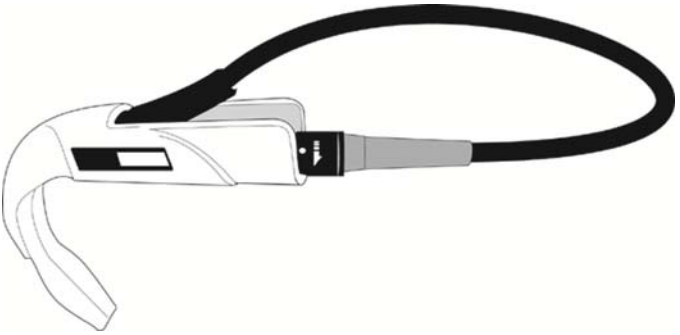
1. Disconnect the Ranger GVL® and video cable from the monitor.

2. Loop the video cable back and place the cable connector over the Ranger GVL® protective cap as shown in Figure 15. Turn the cable connector to lock into place.

Caution

During cleaning, the cable connector and Ranger GVL® protective cap must be mated and locked into place as shown in **Figure 15.**

Figure 15. Correct cleaning position – protective cap covering the electronic connector. Stow the connector as shown before cleaning the Ranger GVL®.



3. Wash the Ranger GVL® manually using a hospital-grade equipment detergent or an enzymatic debridement agent/ detergent to remove all foreign material (e.g., soil and organic material) from the surface of the device.

Disinfecting the GlideScope® Ranger GVL®

To disinfect use any of the chemicals listed in Table 3 and do the following:

1. Ensure the equipment is clean (see Cleaning Section for Ranger GVL®).
2. Ensure the cable connector and Ranger GVL® protective cap is secure (Figure 15)
3. Prepare the disinfectant solution at the concentration and temperature recommended by the disinfectant manufacturer. Disinfect the equipment following the disinfectant manufacturer's instructions or as stated in Table 3.
4. After the disinfection process, rinse (as applicable) and dry the Ranger GVL® and then store the equipment in a clean environment.

Cleaning the GlideScope® Ranger Video Baton

The GlideScope® Ranger Video Baton is a non-sterile reusable device, which is protected by the Stat and is not intended to have direct patient contact.

Caution

Do not place the Ranger Video Baton in the cradle if it is contaminated.

The video baton which is protected from direct contact with the patient by the Stat, will normally only require cleaning and wiping down between uses using either IPA or bleach. If there is concern about its level of contamination or if it is exposed to contamination then it can be disinfected using a High Level Disinfection method, as defined in Table 3 on page 31.

Caution: Ensure the protective cap is properly fitted on the Ranger Video Baton prior to immersion in water. Bleach can be used on the video baton but with special attention to the connector, as it can corrode the stainless steel inserts and damage the connector pins. You can also use a soft brush to scrub the video baton, taking care not to damage the camera lens. However, do not use a wire brush because it may damage the surface of the video baton.

1. Detach the GVL® Stat from the video baton as described on page 20.

   Note: A used GVL® Stat is a biohazard and must be disposed of in a manner consistent with local protocols.

2. Disconnect the video baton from the monitor.

3. Place the protective cleaning cap over the connector (Figure 16).

Figure 16. Make sure that the protective cap is in the correct position before you clean the video baton.

4. Wash the baton manually using a hospital-grade equipment detergent or an enzymatic debridement agent/ detergent to remove all foreign material (e.g., soil and organic material) from the surface of the device.

5. The Ranger Video Baton can now be disinfected.

Disinfecting the Ranger Video Baton

To disinfect use any of the chemicals listed in Table 3 and do the following:

1. Ensure the equipment is clean (see Cleaning Section for Ranger Video Baton).

2. Ensure the cable connector and protective cap lock into place (Figure 16).

3. Prepare the disinfectant solution at the concentration and temperature recommended by the disinfectant manufacturer. Disinfect the equipment following the disinfectant manufacturer's instructions or as stated in Table 3.

4. After the disinfection process, rinse (as applicable) and dry the Ranger Video Baton and then store the equipment in a clean environment.

Cleaning the Ranger Monitor

Wipe the exterior of the monitor with IPA (70% isopropyl alcohol), bleach (100ppm) or a mild detergent and water.

Cleaning the Ranger DVR (Digital Video Recorder)

Wipe the exterior of the DVR with IPA (70% isopropyl alcohol).

Cleaning the Ranger Cradle

Wipe the cradle with a standard hospital-grade surface cleaning product.

Cleaning the Ranger Clam Shell Storage Case

Wipe the Clam shell storage case with IPA (70% isopropyl alcohol), bleach (100ppm) or a mild detergent and water.

Cleaning and Disinfecting the GlideRite® Rigid Stylet

The Stylet is a nonsterile reusable device which requires cleaning and High Level Disinfection as defined in the risk analysis – Table 2 on page 29.

1. Clean using a Low Level Disinfection wipe method or rinse/ brush method.
2. Using a brush, apply detergent or an enzymatic debridement agent.
3. Rinse under clean, running water for 1 minute.
4. Disinfect the Stylet using a High Level Disinfection method as defined in Table 4 on page 32.

Note: For end user convenience it has been determined that the GlideRite® Rigid Stylet is compatible with the autoclaving cycle in Table 4 on page 32.

Replacing the Monitor Battery

Under normal operating conditions, the battery's projected life is 2 - 3 years; the expected number of charge-discharge cycles is approximately 500 cycles.

In case of battery malfunction, do not attempt to replace the monitor battery. **Any attempts to replace the battery by unauthorized service technicians will void the system warranty.** Please contact your Verathon Medical Customer Care representative for more information on battery replacement.

Storing the GlideScope® Ranger

Storing the Reusable GVL®

When the Ranger GVL® is not in use, wind the video cable and place it in the neoprene cover (Figure 17).

Figure 17. When not in use, stow the reusable GVL® with the Ranger Monitor.

Storing the GlideScope® Ranger Video Baton

When not in use, store the Ranger Video Baton and GVL® Stat with the monitor cradle (Figure 17) or in the clam shell storage case (Figure 18).

When using the clamshell case for storage, please insert the video baton into the cradle as pictured. Tuck the cradle under the straps of the clam shell to secure it snugly in place. Then wrap the cable around the top of the cradle and zip the clamshell closed.

Figure 18. Storing the Ranger Single Use Video Baton

The Ranger GVL® and Ranger Video Baton can be safely used and stored under the environmental conditions specified on page 47.

IMPORTANT: The power switch must be in the OFF **(left side) position during storage and shipping.**

Device Disposal

Disposal of this device can be coordinated through your Verathon Service Center in accordance to the WEEE requirements.

GlideScope® Warranty Offerings

Original First Year Total Customer Care℠ Warranty

Verathon warrants the Ranger System against defects in material and workmanship. This warranty applies for one (1) year from the date of shipment from Verathon. This warranty is given only to the original purchaser of the Ranger System.

If a customer's system requires service or repair, Verathon will either replace or provide a loaner unit within one (1) business day from the date of customer service notification. The customer agrees to send the defective unit to Verathon upon receipt of the loaner or replacement unit and agrees to return the loaner unit within two (2) business days of receipt of the repaired unit.

- This warranty provides coverage for damage from accidental drops or mishandling. It does not cover damage due to deliberate mishandling.
- This warranty does not apply if the product has been damaged due to, or as the result of, service or modification by anyone other than an authorized Verathon Service Center
- This warranty does not apply if there is evidence of the equipment being exposed to temperatures in excess of 60º C

The product shall be used in accordance with the instructions contained in this User's Manual. Consumable items (i.e., endotracheal tubes, Stats, stylets, etc.) shall be used in conformance to Verathon product specifications. Consumable items are not covered under this warranty.

What is Covered

Warranty coverage is extended to GlideScope® Ranger Systems:

- Video Monitor including the display connector cable
- Reusable Ranger GVL® 3 and GVL® 4
- Ranger Single Use Video Batons

Additional GVL® or video baton devices purchased either singularly or as a part of a system must be warranted separately.

Additional Video Monitors purchased either singularly or as part of a system must be warranted separately.

Premium Customer Care℠ Warranty

The Premium Customer Care℠ warranty from Verathon® can be extended for a total of up to six (6) years from date of purchase.

Disclaimer of Additional Warranties

There are no understandings, agreements, representations of warranties expressed or implied (including warranties of merchantability or fitness for a particular purpose) other than those set forth in the preceding Warranty section. The contents of this manual do not constitute a warranty.

Some states disallow certain limitations on applied warranties. The purchaser, user, and patient should consult state law if there is a question regarding this disclaimer. This information, descriptions, recommendations, and safety notations in this manual are based upon Verathon® experience and judgment with the Ranger System as of October 2008. The contents of this manual should not be considered to be all-inclusive, or to cover all contingencies.

Contact Information

To obtain additional information regarding your Ranger System, please contact Verathon Medical Customer Care at:

Corporate HQ:
(US and Canada)
Verathon Inc.
20001 North Creek Parkway
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Fax: +33.(0)3.88.60.46.87

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4224 Manor Street
Burnaby, BC V5G 1B2
Canada
604.439.3009
Fax: 604.439.3039

Parts and Accessories

Table 5. Ranger System components and accessories.

Product Description	Part Number
GlideScope® Ranger System, NA	0270-0374
GlideScope® Ranger System, EU	0270-0375
GlideScope® Ranger System, UK	0270-0376
GlideScope® Ranger GVL® 4 (Reusable)	0574-0028
GlideScope® Ranger GVL® 3 (Reusable)	0574-0029
Ranger Video Baton 3-4 (Reusable)	0570-0198
Ranger Video Baton 1-2 (Reusable)	0570-0211
GVL® Stat 4 (Single Use), Qty 10	0270-0628
GVL® Stat 3 (Single Use), Qty 10	0270-0626
GVL® Stat 2 (Single Use), Qty 10	0270-0429
GVL® Stat 1 (Single Use), Qty 10	0270-0428
GVL® Stat 4 (Single Use), Qty 100	0270-0629
GVL® Stat 3 (Single Use), Qty 100	0270-0627
GVL® Stat 2 (Single Use), Qty 100	0270-0431
GVL® Stat 1 (Single Use), Qty 100	0270-0430
GlideScope® Ranger Video Monitor	0570-0186
GlideRite® Rigid Stylet (package of six)	0803-0009
GlideScope® DVR for Ranger	0570-0300
GlideRite® Guide	0803-0104
Ranger Video Baton Clam Shell Case	0800-0334
GlideScope® Ranger Large Soft Bag with Snaps	0800-0349

Product Description	Part Number
Medical Power Supply	0400-0065
GlideScope® Ranger System User's Manual, (English)	0900-1307
AC Power Cord, 0.6 m, NA	0600-0247
AC Power Cord, 0.6 m, EU	0600-0246
AC Power Cord, 0.6 m, UK	0600-0248
Ranger GVL® Quick Reference Card	0900-1326
GlideScope® 4-Step Tips and Techniques Quick Reference Card	0900-1436
GlideScope® GVL® and Video Baton Cleaning Poster	0900-1429

Specifications

Verathon reserves the right to change product specifications without notice.

General Specifications

Classification:	Electrical Class II, Applied Part BF
Line Voltage	Range: 100–240 VAC, 50 & 60 Hz
Line Current:	MAX 0.25 A

Operating and Storage Conditions:

Operating Conditions

Temperature:……...…10°C to 40°C

Relative Humidity:…….....0 to 95%

Atmospheric Pressure:……440 to 1060 hPa

Shipping and Storage Conditions

Temperature:……..……-20°C to 45°C

Relative Humidity:……..……....0 to 95%

Atmospheric Pressure:……440 to 1060 hPa

Charging Conditions

Temperature:……..…0°C to 40°C

Relative Humidity:……..…....0 to 95%

Atmospheric Pressure:……440 to 1060 hPa

Ingress Protection

IP68 up to 3 ft (1.0 m) for 60 minutes

GlideScope® Ranger System Components

Ranger Video Monitor

320 x 240 pixel, 3.5 in LCD TFT Panel		
Height:	6.6 in	168 mm
Width:	6.8 in	173 mm
Depth:	1.9 in	49 mm
Weight:	1.25 lb	0.56 kg

Ranger GVL® 4

Tip to front of handle:	3.5 in	89 mm
Thickness (height) at camera:	.57 in	14.5 mm
Width at camera:	0.75 in	19 mm
Blade length in front of camera:	1.9 in	49 mm
Max blade width in front of camera:	1.06 in	27 mm
Weight:	4.5 oz	128 g

Ranger GVL® 3

Tip to front of handle:	3.07 in	78 mm
Thickness (height) at camera:	.57 in	14.5 mm
Width of camera pod:	.55 in	14 mm
Blade length in front of camera:	1.4 in	36 mm
Max blade width in front of camera:	.79 in	20 mm
Weight:	4.2 oz	120 g

Ranger Video Baton 3-4:

Length: camera tip to SS ring:	4.1 in	104.1 mm
Height of camera:	.42 in	10.7 mm
Width of camera:	.43 in	10.9 mm
Cable length:	34 in	864 mm
Weight:	5 oz	141 g

Ranger Video Baton 1-2:

Length: camera tip to handle (flexible tube):	1.57 in	40 mm
Height of camera:	.236 in	6 mm
Width of camera:	.276 in	7 mm
Cable length:	34 in	865 mm
Weight:	3.4 oz	95 g

GVL® Stat 4

Tip to front of handle:	3.7 in	95 mm
Thickness (height) at camera:	.63 in	16 mm
Width of camera:	.78 in	20 mm
Blade length in front of camera:	2.1 in	53 mm
Max blade width in front of camera:	1.1 in	27.5 mm

GVL® Stat 3:

Tip to front of handle:	3.15 in	80 mm
Thickness (height) at camera:	.63 in	16 mm
Width of camera pod:	.63 in	16 mm
Blade length in front of camera:	1.46 in	37 mm
Max blade width in front of camera:	.83 in	21 mm

GVL® Stat 2:

Tip to front of handle:	2 in	51 mm
Thickness (height) at camera:	.34 in	8.7 mm
Width of camera:	.43 in	10.9 mm
Blade length in front of camera:	1.10 in	28 mm
Max blade width in front of camera:	.63 in	16 mm

GVL® Stat 1:

Tip to front of handle:	1.5 in	38 mm
Thickness (height) at camera:	.34 in	8.7 mm
Width of camera:	.39 in	9.9 mm
Blade length in front of camera:	.59 in	15 mm
Max blade width in front of camera:	.51 in	13 mm

GlideScope® DVR for Ranger:

Length:	4.1 in	103.2 mm
Width:	2.3 in	58.2 mm
Height:	1.2 in	32.2 mm
Weight:	~.38 lbs	~172 g
Max SD card size:	2 GB	2 GB
Recording on 1 GB SD card:	~1.5 hr	~1.5 hr

Power Supply Specifications

Manufactured by Jerome Power Supply for Verathon Medical (Canada) ULC. Model Name: Jerome WSC112M, Verathon® part number: 0400-0065.

Standards and Approvals

- ISO 13485 Certificate No. 9235
- CE marking requirements met for Class 1 and Class 1 Sterile Devices
- IEC 60601-2-18 (Second Edition, 1996)
- IEC 60601-1-2:2001 Medical Directive
- US UL 60601-1 (First Edition)
- US UL 2601-1 (Second Edition)
- CAN/CSA C22.2 No. 601.1-M90
- AU, CA, DK, IL, and US National Differences, as per CB Bulletin 107a
- FCC Report of Measurements as per FCC CFR47 Part 18

Symbol Directory

The following international regulatory symbols are found on Ranger System components and indicate compliance with international regulatory standards.

Table 6. Ranger System labeling symbols.

Symbol	Meaning
	Power connected to mains
	Power disconnected from mains
	Type BF equipment
	CE marking in accordance with the Medical Device Directive (CE 0413 for Sterile Devices)
	Canadian Standards Association (CSA) mark of certification to applicable standards for electro-medical equipment
	Tested to Federal Communications Commission Requirements
	Caution – consult accompanying documents. Read instructions before connecting or operating.
	Subject to WEEE (Waste of Electronic Electrical Equipment) regulations.
	Electrical Class II